

8/16

Work Order ID 164886
 Tuesday, August 08, 2017 9:27:29 AM

164886

Item ID: D5237-7 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Bracket
 Start Date: 8/1/2017 Start Qty: 8.00 ***8*** Cust Item ID:
 Required Date: 8/10/2017 Req'd Qty: 8.00 ***8*** Customer:
 Reference:

Approvals: Process Plan:  Date: AUG 08 2017 Tooling: Date: Run Start ***NR1***
 QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D5237	B								
100		0.00							
100									
Bandsaw	Memo	0.00							
Jeaspa Bandsaw	cut blank 5.625" long								
105		0.00							
105									
HAAS 5AXIS	Memo	2.83							
HAAS CNC vertical machine #5	1-MILL as per Dwg								
	Dwg Rev: B								
	Folio Rev: Aa								
	2-Deburr								

B-a 17-08-17

8 0

DAS
08
9-89

8 0

DAS
14
9-89

17/08/19

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Work Order ID 164886

Tuesday, August 08, 2017 9:27:29 AM

164886

Page 2

Item ID: D5237-7

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop ***NS2***

Item Name: Bracket

Start Date: 8/1/2017 Start Qty: 8.00

8

Cust Item ID:

Required Date: 8/10/2017 Req'd Qty: 8.00

8

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

QC2- Inspect parts off machine FAI/FAIB

0.00

110

QC

Memo

0.08

Quality Control

8

0

DAS
14
9-89

17/08/19

120

QC8- Inspect parts - second check

0.00

120

QC

Memo

0.16

Quality Control

8

0

DAS
38
9-89

AUG 21 2017

130

Chemical Conversion Coat per QSI005 4.1

0.00

130

HandFinish

Memo

0.47

Hand Finishing

8

0

2017-08-22

JSL
BET

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER : ☐									

Work Order ID 164886

Tuesday, August 08, 2017 9:27:29 AM

164886

Page 3

Item ID: D5237-7

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Bracket

Start Date: 8/1/2017 Start Qty: 8.00

8

Cust Item ID:

Required Date: 8/10/2017 Req'd Qty: 8.00

8

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

QC7-Inspect Chemical Conversion Coat

0.00

140

QC

Memo

0.08

Quality Control

3

DAS
38
9-89

AUG 22 2017

170

Identify as per dwg & Stock Location: 57451

0.00

170

Packaging

Memo

0.08

Packaging

6

AUG 23 2017

DAS
6
9-89

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.80

Quality Control

DAS
21
9-89

AUG 25 2017

UM 17/8/23

DAS
21
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval			
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval			
Root Cause		FAULT CATEGORY									
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :									
Misidentified ☐	Past Due ☐										

Picklist Print

Tuesday, August 08, 2017 9:27:29 AM

Page 1

Work Order ID: 164886

164886

Parent Item: D5237-7

D5237-7

Parent Item Name: Bracket

Start Date: 8/1/2017

Required Date: 8/10/2017

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP Rev:A RQ 15.06.03 Verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B2.000X04.50 0		Purchased	No			100	f	9.5000	0.468	3.941053			

M6061T6B2 000X04 500

6061T6 Bar 2.00 x 4.500 (cut to 5.00 OR 5.625 +/- .000)

**

B.e 17-08-17

DAS
08
9-09

Location

Loc Qty

Loc Code

MAT008

9.5

m138109

9.5

→ M 134058

3.75 ft

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

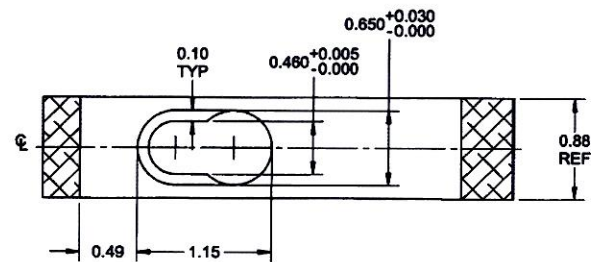
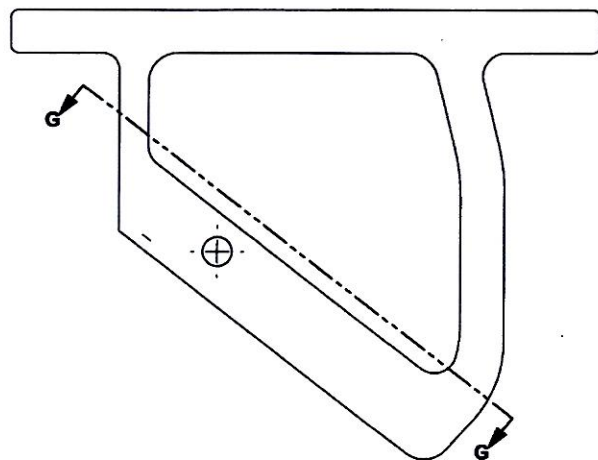
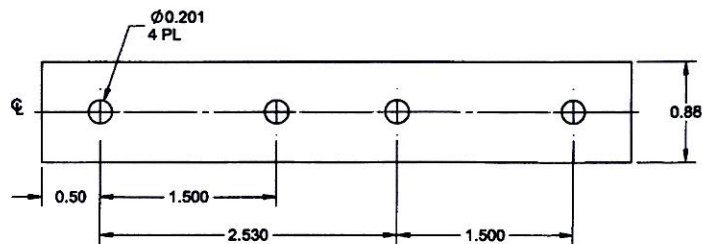
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐								
		OTHER : _____							

DART AEROSPACE LTD		Work Order:	164886
Description: Bracket		Part Number:	D5237-7
Inspection Dwg: D5237 Rev: B		Page 1 of 2	

INSPECTION SHEET

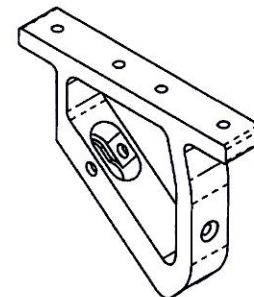
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.50	+/-0.030	.500	—		Vern HL-08	
Ø0.201	+0.005/-0.001	Ø.201	—		"	
1.500	+/-0.005	1.500	—		"	
2.530	+/-0.005	2.530	—		"	
1.500	+/-0.005	1.500	—		"	
0.88	+/-0.030	.879	—		"	
0.650	+0.030/-0.000	.669	—		"	
0.460	+0.005/-0.000	.460	—		"	
0.10	+/-0.030	0.100	—		"	
1.15	+/-0.030	1.165	—		"	
0.100	+0.000/-0.005	.096	—		"	
0.44	+/-0.030	.460	—		"	
0.34	+/-0.030	.342	—		"	
2.260	+/-0.005	2.257	—		"	
0.380	+0.000/-0.002	.380	—		"	
0.66	+/-0.030	.658	—		"	
Ø0.252	+0.005/-0.000	Ø.252	—		"	
2.100	+/-0.005	2.100	—		"	
1.92	+/-0.030	1.925	—		"	
R0.19	+/-0.030	R.190	—		R-6	
R0.25	+/-0.030	R.250	—		"	
0.25	+/-0.030	.249	—		Vern HL-08	
R0.15	+/-0.030	R.150	—		R-6	
R0.06	+/-0.030	R.060	—		"	
0.92	+/-0.030	.923	—		Vern HL-08	
76°	+/-0.5°	76°	—		C-Square	
3.84	+/-0.030	3.840	—		Vern HL-08	
4.03	+/-0.030	4.030	—		"	
5.03	+/-0.030	5.032	—		"	
0.38	+/-0.030	.376	—		"	
R0.20	+/-0.030	R.200	—		R-6	
R2.00	+/-0.030	R2.000	—		"	
0.38	+/-0.030	.375	—		Vern HL-08	
R1.00	+/-0.030	R1.000	—		"	
3.90	+/-0.030	3.900	—		"	
86°	+/-0.5°	86°	—		C-Square	
2.39	+/-0.030	2.390	—		Vern HL-08	
Ø0.201	+0.005/-0.001	Ø.201	—		"	
Ø0.385 x 100°	+/-0.010 x +/-0.5°	Ø.382 x 100°	—		"	



SECTION G-G

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 164786

AUG 08 2017



NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B211
- OR 6061-T6/T62 ALUMINUM SHEET
PER QQ-A-250/11 OR AMS-QQ-A-250/11
OR AMS 4025 OR AMS 4027
OR ASTM B209
REF DART SPEC. M6061T6B/M6061T6S
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.43 lbs

D5237-7 BRACKET

RELEASED
2015-12-07

APPROVED

DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JLM	D5237	SHEET 5 OF 8
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	BRACKET	NTS
DATE	15.10.16	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

